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DT3000 Series

High Performance, High Channel-Count, Data Acquisition Boards for the PCI BUS

Key Features

- Seven different board configurations provide a range of flexible, cost-effective options.
- Support gap-free A/D, D/A, and digital I/O at full rated throughput.
- Up to 64 analog inputs support high channel-count applications.
- ENOB specification guarantees outstanding total system accuracy.
- 256-location channel-gain list allows flexible channel selection in any sequence desired.
- High-gain versions for low-level input applications, such as thermocouple and strain gauge.
- Supported by Measure Foundry®, test and measurement application builder software that lets you easily create complex measurement applications.

Overview

The DT3000 Series brings you high performance data acquisition on a high performance bus at low cost. The boards are optimized for use on the PCI Bus, and support continuous performance (gapfree) simultaneous A/D and D/A operation at full rated throughput.

A/D Choices: Up to 64 Channels, 330 kS/s Throughput,12- or 16-Bit Resolution

High channel count design gives you up to 64 single-ended (or 32 differential) analog input channels on a single PCI compatible board. Models with 32 or 16 inputs, 12- or 16-bit A/D resolution, or with analog outputs, are also available.

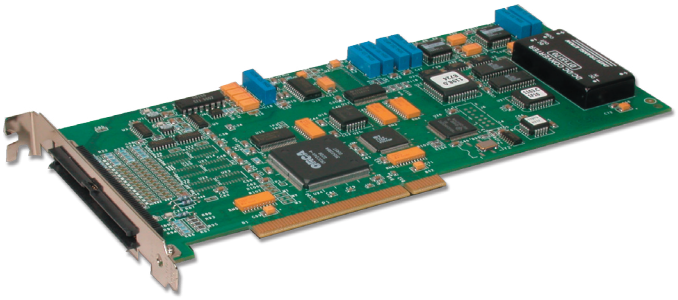

Figure 1. The DT3000 Series brings high performance data acquisition to the PCI Bus.

High Performance Features

The DT3000 Series offers high performance features that give extra flexibility to your data acquisition application. A 256-location onboard channel gain list allows the acquisition of channels in nonsequential order or with different gains, giving you added flexibility in setting up your acquisition sequences. The triggered scan feature emulates simultaneous sample and hold functionality by scanning through all channels in the channel gain list at a high speed and then using a second clock to time the scans.

Easy Installation

Installation is simple: Just plug the board into a PCI slot and you're done. DT3000 supports true plug and play under Microsoft® Windows®. "Hands-Off" design permits all board parameters — channel selection, gain, operating mode, base address, hardware interrupt — to be performed in software without the need for jumpers or switches.

Features Summary

Model	Analog Inputs				Analog Outputs		Digital	
	Channels	Resolution	Input Range	Throughput	Channels	Throughput	DIO	Counter/Timer
DT3001	16SE/8DI	12-bit	±1.25, 2.5, 5, 10V	330 kS/s	2 DACs	200 kS/s/DAC	8	1
DT3001-PGL	16SE/8DI	12-bit	±0.02, 0.1, 1, 10V	330 kS/s	2 DACs	200 kS/s/DAC	8	1
DT3002	32SE/16DI	12-bit	±1.25, 2.5, 5, 10V	330 kS/s	—	—	8	1
DT3003	64SE/32DI	12-bit	±1.25, 2.5, 5, 10V	330 kS/s	2 DACs	200 kS/s/DAC	8	1
DT3003-PGL	64SE/32DI	12-bit	±0.02, 0.1, 1, 10V	330 kS/s	2 DACs	200 kS/s/DAC	8	1
DT3004	16SE/8DI	16-bit	±1.25, 2.5, 5, 10V	100 kS/s	2 DACs	200 kS/s/DAC	8	1
DT3005	16SE/8DI	16-bit	±1.25, 2.5, 5, 10V	200 kS/s	2 DACs	200 kS/s/DAC	8	1

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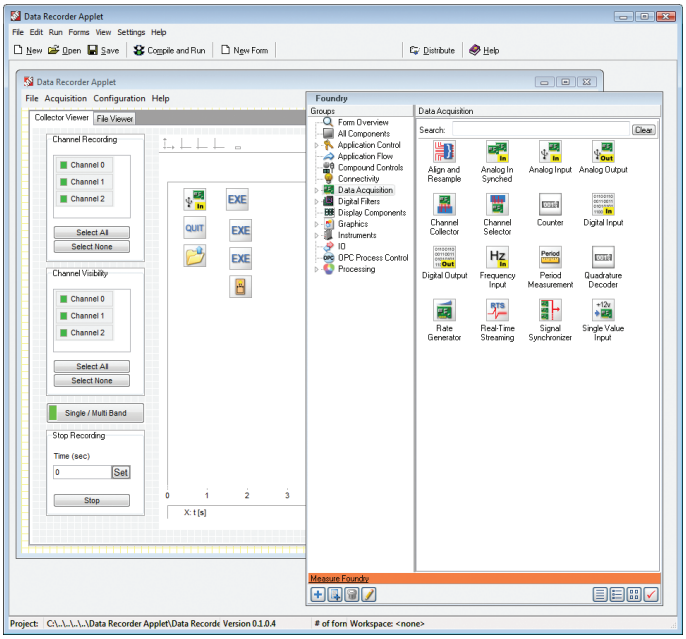
Software Options

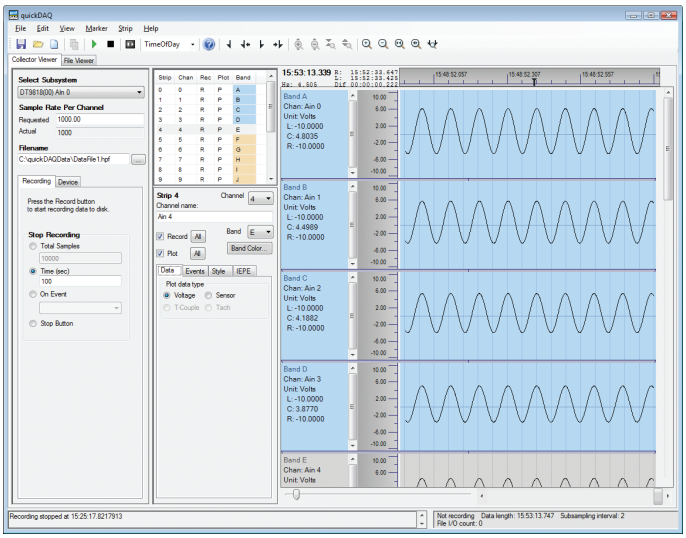
Many software choices are available for application development, from ready-to-measure applications to programming environments, and run under Microsoft® Windows® XP/Vista/7.

The following software is available for use with this PCI DAQ board, and is provided on the Data Acquisition Omni CD:

- **Device Driver** – The device driver allows the use of this DAQ module with any of the supported software packages or utilities.
- **Measure Foundry®** – An evaluation version of this software is included on the Data Acquisition Omni CD. Measure Foundry® is a drag-and-drop test and measurement application builder designed to give top performance with ease-of-use development.
- **Measurement Applets** – Included in the Measure Foundry evaluation version. These small applications, developed with Measure Foundry, can be modified or combined to provide a specific solution. Order the full development version of Measure Foundry to develop applications using real hardware.
- **quickDAQ application** – An evaluation version of this .NET application is included on the Data Acquisition Omni CD. quickDAQ acquires analog data from all devices supported by DT-Open Layers for .NET software at high speed, plots it during acquisition, analyzes it, and/or saves it to disk for later analysis. *Note: quickDAQ supports analog input functions only. DIO only boards are not supported.*
- **Quick DataAcq application** – The Quick DataAcq application provides a quick way to get up and running using your PCI board. Using this application, verify key features of the module, display data on the screen, and save data to disk.
- **DT-Open Layers® for .NET Class Library** – Use this class library if you want to use Visual C#® or Visual Basic® for .NET to develop application software for your PCI board using Visual Studio® 2003/2005/2008; the class library complies with the DT-Open Layers standard.
- **DataAcq SDK** – Use the Data Acq SDK to use Visual Studio 6.0 and Microsoft® C or C++ to develop application software for your PCI board using Windows®; the DataAcq SDK complies with the DT-Open Layers standard.
- **DTx-EZ** – DTx-EZ provides ActiveX® controls, which allows access to the capabilities of your PCI board using Microsoft Visual Basic or Visual C++®; DTx-EZ complies with the DT-Open Layers standard.
- **DAQ Adaptor for MATLAB** – Data Translation's DAQ Adaptor provides an interface between the MATLAB® Data Acquisition (DAQ) toolbox from The MathWorks™ and Data Translation's DT-Open Layers architecture.
- **LV-Link** – An evaluation version of this software is included on the Data Acquisition Omni CD. Use LV-Link to use the LabVIEW™ graphical programming language to access the capabilities of your PCI board.



The data recorder applet is developed with Measure Foundry and allows you to acquire data, plot it, and save it to disk.



quickDAQ acquires analog data from all devices supported by DT-Open Layers for .NET software at high speed, plots it during acquisition, analyzes it, and/or saves it to disk for later analysis.

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DT730 ScrewTerminal Panels and Cable

The DT730 and DT730-T screw terminal panels and cable simplify the connection of input and output devices to data acquisition boards. They accommodate all user connections on convenient screw clamp connectors. The DT730-T includes a temperature sensor for use with thermocouples and the DT3001-PGL or DT3003-PGL. The DT730 and DT730-T are designed for tabletop or panel mounting, and include nylon standoffs. The panels measure approximately 4.5 in. wide x 6.56 in. long (11.43 x 16.55 cm). They are shipped complete with a 3.3 ft. (1 m) cable assembly to plug directly into the PCI-EZ board.

ENOB Specification Measures Total Accuracy

Total system performance of the DT3000 Series is specified with the most accurate measurement available: ENOB (Effective Number of Bits). Derived from a board's signal-to-noise ratio, ENOB specifies the overall accuracy of the A/D transfer function. This single comprehensive figure of merit enables you to easily evaluate a board's AC accuracy and performance. ENOB is 11.5 bits for the DT3001, DT3002, and DT3003, and 13.5 bits for the DT3004 and DT3005.

Cross-Series Compatibility

Virtually all Data Translation data acquisition boards and modules are compatible with the DT-Open Layers® Class Library. This means that if your application was developed with one of Data Translation's software products, you can easily upgrade to a new Data Translation board. Little or no reprogramming is needed.

User's Manual

Each DAQ board or module includes a comprehensive user's manual that provides getting started and reference information. The manual is provided in electronic (PDF) format on the Data Acquisition Omni CD, included with the module and also available online.

Technical Support

Application engineers are available by phone and email during normal business hours to discuss your application requirements. Extensive product information, including drivers, example code, pinouts, a searchable Knowledge Base, and much more, is available 24 hours a day on our web site at www.datatranslation.com.

Ordering Summary

All Data Translation hardware products are covered by a 1-year warranty. For pricing information, please visit our website or contact your local reseller.

DT3000 SERIES

Each DT3000 Series board is shipped with the Data Acquisition Omni CD, which includes DT-Open Layers-compliant drivers for Microsoft Windows XP/Vista/7, ready-to-run software, and comprehensive user's manuals in PDF format. (Manuals are available in hard-copy form for an additional charge).

- **DT3001** — 12-bit, 330 kS/s A/D with 16SE/8DI inputs; 2 DACs
- **DT3001-PGL** — 12-bit, 330 kS/s A/D with 16SE/8DI inputs; gains of 1, 10, 100, 500; 2 DACs
- **DT3002** — 12-bit, 330 kS/s A/D with 32SE/16DI inputs
- **DT3003** — 12-bit, 330 kS/s A/D with 64SE/32DI inputs; 2 DACs
- **DT3003-PGL** — 12-bit, 330 kS/s A/D with 64SE/32DI inputs; gains of 1, 10, 100, 500; 2 DACs
- **DT3004** — 16-bit, 100 kS/s A/D with 16SE/8DI inputs; 2 DACs
- **DT3005** — 16-bit, 200 kS/s A/D with 16SE/8DI inputs; gains of 1, 2, 4, 8; 2 DACs

ACCESSORIES

- **DT730** — Scew terminal panel and 1m cable
- **DT730-T** — Scew terminal panel with temperature sensor and 1m cable

SOFTWARE

The following software is available for purchase separately:

- **Measure Foundry** – Visual, drag-and-drop software development environment for Windows® XP, Vista, and Windows 7. (SP1300-CD)
- **quickDAQ** – High-performance, ready-to-run application that lets you acquire, plot, analyze, and save data to disk at up to 2 MHz per channel. (SP8501-CD)
- **LV-Link** – Access the power of Data Translation boards through LabVIEW™.

FREE SOFTWARE

The following software is available for free download from our website:

- **DAQ Adaptor for MATLAB** – Access the analyzation and visualization tools of MATLAB®.

For more information about the DT3000 Series, including specifications, please visit: **http://www.datatranslation.com/info/DT3000Series/**

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